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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.                | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------------------|------------------|
| 10/604,559  | 07/30/2003  | Robert V. Falsetti   | 129180                             | 1558             |
| 27127   | 7590        | 07/26/2005           |                                    |                  |
| HARTMAN & HARTMAN, P.C.<br>552 EAST 700 NORTH<br>VALPARAISO, IN 46383 |             |                      | EXAMINER<br>FAYYAZ, NASHMIYA SAQIB |                  |
|   |             |                      | ART UNIT                           | PAPER NUMBER     |
|   |             |                      | 2856                               |                  |

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/604,559

Applicant(s)

FALSETTI ET AL.

Examiner

Nashmiya S. Fayyaz

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 is/are allowed.
- 6) ☒ Claim(s) 12-18 and 20-37 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. Claims 12-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy et al- U.S. Patent # 6,725,722. As to claims 12-18 and 20, Murphy et al disclose a method of inspecting a turbine wheel 10 which is "disk-shaped" and having a central opening (see Fig. 4) and a plurality of secondary openings 22/24 circumferentially spaced from each other along a circle concentric with the central opening (hub) (see Fig. 3) with an annular shaped web region see Fig. 4 and including the method of placing the transducer 40 in an hole 22/24 and performing a pulse-echo technique causing the transducer to emit ultrasonic signals that intersect radials of the wheel at 90 degrees (see Fig. 4) and located within the web portion, see col. 4, lines 32 et seq, note that the transducers can be moved in the circumferential direction so as to perform a scan to locate additional points throughout the web portion (note col. 2, lines 25-48). It is noted however that the "web portion" is not defined as such by Murphy et al. However, noting the illustration of Fig. 4, it is evident that an area of the wheel exists between the central bore and the outer edge of the opening 22/24 region. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have designated the area as a "web portion" since such a region of the wheel lies between the central bore and bolt holes region which is obviously being probed and evaluated. As to claim 13,

Murphy et al teach usage of arrays which would indicate the usage of simultaneous pulsing of multiple transducers. As to claim 14, Murphy et al also disclose mechanically moving the probes indicating that the probe would be pulsed at different times, note col. 2, lines 17-48. As to claim 15, note that probe transducer can be a multi-element or phased array (figs. 5-6) where the probe may be pulsed with "appropriate time delays" to focus and steer the beam indicating the associated means to perform such as well, see col. 5, lines 2-37. As to claim 16, note that Fig. 5 depicts the transducer as a cylinder probe which inherently or is capable of having two semi-circular cross sections which from Fig. 3 appears to have equal radius of curvature to the opening in which it is inserted. As to claim 20, note col. 1, lines 8 et seq. As to claim 17, the material of the probe upon which the array elements is mounted in not provided by Murphy et al. However, official notice is taken that it is old and well-known to employ the same material as the tested material for the purposes of enhancing coupling and signal transmission. As to claim 18, although the equation is not given, Murphy et al do indicate steering the ultrasonic beam 360 degrees around the hole such that a complete circumferential or helical scan of the material about the holes is performed in order to create a "scan/index coverage path", see col. 5, lines 8-37. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have determined the geometrical equation given since Murphy et al indicate performing a circumferential scan.

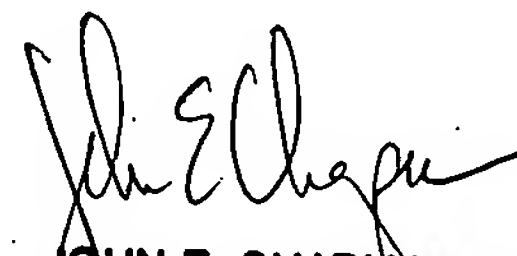
2. Claims 21-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy et al in view of Derkacs et al (U.S. Patent # 4,660,419). As to claims 21, 30 and 31, Murphy et al disclose a method and associated device of inspecting a turbine wheel 10 which is "disk-shaped" and having a central opening and a plurality of secondary openings 22/24 see Figs. 1, 3 and 4 and including the method of placing the transducer 40 in an hole 22/24 and performing a pulse-echo technique causing the transducer to emit ultrasonic signals that intersect radials of the wheel at 90 degrees (see Fig. 4), see col. 4, lines 32 et seq. However, Murphy et al lack a teaching for calibrating the transducer on the basis of signals reflected from the central opening. In a related prior art device, Derkacs et al disclose a array of ultrasonic transducers for examining tubular objects and further provide a teaching for a calibration operation where the bore bottom echo signal is received by the pulse amplitude measurement means 64 and it is maximized and is stored as a reference standard, see col. 8, lines 36 et seq. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the calibration of the amplitude by bore bottom echo measurement as disclosed by Derkacs et al into the Murphy et al reference since Murphy et al lacks a teaching for reference standard calibration so as to be able to gauge whether a pulse echo signal received is a flaw and to determine the proper gain requirements. As to claims 22-24 and 32-34, note that probe transducer can be a multi-element or

phased array (figs. 5-6) where the probe may be pulsed with "appropriate time delays" to focus and steer the beam indicating the associated means to perform such as well which indicates simultaneous pulsing as well as phased, see col. 5, lines 2-37. As to claim 25, note fig. 4 indicating the axes being parallel. As to claim 26, noting that the signals emanate 360 degrees around the opening, it would appear that all of the points are located between the central opening and the opening, note fig. 4. As to claims 27 and 35, note fig. 5 depicts the transducer as a cylinder probe which inherently or is capable of having two semi-circular cross sections which from Fig. 3 appears to have equal radius of curvature to the opening in which it is inserted. As to claims 28 and 36, the material of the probe upon which the array elements is mounted is not provided by Murphy et al. However, official notice is taken that it is old and well-known to employ the same material as the tested material for the purposes of enhancing coupling and signal transmission. As to claims 29 and 37, although the equation is not given, Murphy et al do indicate steering the ultrasonic beam 360 degrees around the hole such that a complete circumferential or helical scan of the material about the holes is performed in order to create a "scan/index coverage path", see col. 5, lines 8-37. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have determined the geometrical equation given since Murphy et al indicate performing a circumferential scan.

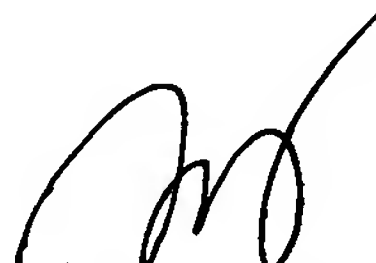
***Allowable Subject Matter***

3. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
4. Claims 1-11 are allowed.
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nashmiya S. Fayyaz whose telephone number is 571-272-2192. The examiner can normally be reached on Mondays and Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

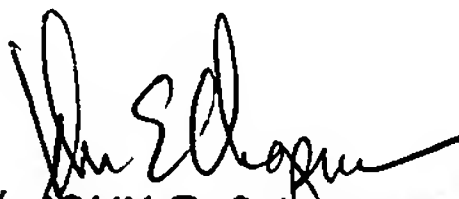
  
JOHN E. CHAPMAN  
PRIMARY EXAMINER

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



NFayyaz  
Examiner  
Art Unit 2856

nf  
7/21/05



JOHN E. CHAPMAN  
PRIMARY EXAMINER